

OUTLINE FOR SMALL PRINTING FACILITIES TO CALCULATE MAXIMUM THEORETICAL EMISSIONS FOR DETERMINING APPLICABILITY OF THE LITHOGRAPHIC PRINTING RULE

The following guide outlines one method for estimating a small facility's maximum theoretical emissions (MTE) to determine if the lithographic printing regulation applies. Facilities are not bound to this methodology; but it is one method that the Department will accept. This guide is not all inclusive and individual variations in printing operations may need to be considered. This guide may not be appropriate for determining MTE for other regulatory purposes, such as for permitting. All calculations do not include consideration of control devices, such as catalytic or thermal incinerators.

This guide is divided into three sections: non-heatset web presses, heatset web presses, and sheet-fed nonheatset presses. **Complete the appropriate section for each individual press, then total the results from all the presses. This total is the Maximum Theoretical Emissions for your entire printing operation.**

All of the calculations utilize the volatile organic compound (VOC) content of a material. Information about the VOC content, expressed as pounds VOC per gallon OR as percent VOC of an ink, coating, or solution can usually be found on the accompanying Material Safety Data Sheet (MSDS), through your distributor or supplier, or from the label on the container. In some cases where a solution is mixed on site, the VOC content of the solution may have to be calculated by hand. For this guide, it has been assumed that the VCC content of inks (also called coatings) is typically expressed as a percentage, and that the VCC content of solutions or washes are typically expressed as pounds VOC per gallon (lbs VOC/gal).

For determining the maximum usage of fountain solution or blanket/roller wash for one press, simply apply a ratio of (*maximum* ink usage)/(actual ink usage) to the actual usage of fountain solution or blanket/roller wash. Maximum ink usage should be calculated as outlined below. Actual usage of fountain solutions and blanket/roller washes can be determined from purchase records, or from other recordkeeping. If the fountain solutions or blanket/roller washes are in a closed, automated type system, then this method for determining actual usage may need to be modified.

Non-heatset Web Presses

Maximum web width	_____	in	(1)
Maximum ink coverage per print deck	_____	lbs of ink/in ²	(2)
How many print decks?	_____		(3)
Maximum line-speed	_____	in/hr	(4)
Multiply (1)x(2)x(3)x(4)	_____	lbs of ink/hr	(5)
Maximum VOC content ink	_____	% VOC (by weight)	(6)
Multiply (0.05 x(5)x(6))/100	_____	lbs VOC/hr	(7)
Multiply (7)x 730 hrs/mo *	_____	lbs VOC/mo	(8)
Maximum fountain solution usage per month	_____	gal/mo	(9)
Maximum VOC content	_____	lbs VOC/gal	(10)
Multiply (9)X(10)	_____	lbs VOC/mo	(11)
Maximum blanket/roller wash usage per month	_____	gal/mo	(12)
Maximum VOC content	_____	lbs VOC/gal	(13)
Multiply (12)x(13)	_____	lbs VOC/mo	(14)
Add (8)+(11)+(14)	_____	lbs VOC/mo MTE	(15)

* [Note: 24 hrs/day x 365 days/yr -- 12 mo/yr = 730 hrs/mo.]

Heatset Web Presses

Maximum web width	_____	in	(1)
Maximum ink coverage per print deck	_____	lbs of ink/in ²	(2)
How many print decks?	_____		(3)
Maximum line-speed	_____	in/hr	(4)
Multiply (1)x(2)x(3)x(4)	_____	lbs of ink/hr	(5)
Maximum VOC content ink	_____	% VOC (by weight)	(6)
Multiply (0.80 x(5)x(6))/100	_____	lbs VOC/hr	(7)
Multiply (7)x 730 hrs/mo*	_____	lbs VOC/mo	(8)
Maximum fountain solution usage per month	_____	gal/mo	(9)
Maximum VOC content	_____	lbs VOC/gal	(10)
Multiply (9)X(10)	_____	lbs VOC/mo	(11)

Maximum blanket/roller wash usage per month	_____	gal/mo	(12)
Maximum VOC content	_____	lbs VOC/gal	(13)
Multiply (12)x(13)	_____	lbs VOC/mo	(14)

Add (8)+(11)+(14)	_____	lbs VOC/mo MTE	(15)

* (Note: 24 hrs/day x 365 days/yr - 12 mo/yr = 730 hrs/mo.)

Sheet-fed Presses

Maximum sheet size	_____	in ²	(1)
Maximum ink coverage per print deck	_____	lbs of ink/in ²	(2)
How many print decks?	_____		(3)
Maximum line-speed	_____	in/hr	(4)
Multiply (1)x(2)x(3)x(4)	_____	lbs of ink/hr	(5)
Maximum VOC content ink	_____	% VOC (by weight)	(6)
Multiply (0.05 x(5)x(6))/100	_____	lbs VOC/hr	(7)
Multiply (7)x 730 hrs/mo *	_____	lbs VOC/mo	(8)

Maximum fountain solution usage per month	_____	gal/mo	(9)
Maximum VOC content	_____	lbs VOC/gal	(10)
Multiply (9)X(10)	_____	lbs VOC/mo	(11)

Maximum blanket/roller wash usage per month	_____	gal/mo	(12)
Maximum VOC content	_____	lbs VOC/gal	(13)
Multiply (12)x(13)	_____	lbs VOC/mo	(14)

Add (8)+(11)+(14)	_____	lbs VOC/mo MTE	(15)
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* (Note: 24 hrs/day x 365 days/yr - 12 mo/yr = 730 hrs/mo.)

EXAMPLE

(1 facility with 5 presses)

Press #1: Sheet-fed Press

Maximum sheet size	_____	864	in ²	(1)
Maximum ink coverage per print deck	_____	0.000032	lbs of ink/in ²	(2)
How many print decks?	_____	6		(3)
Maximum line-speed	_____	20	sheets/hr	(4)
Multiply (1)x(2)x(3)x(4)	=	3.32	lbs of ink/hr	(5)
Maximum VOC content ink	_____	30	% VOC (by wgt.)	(6)
Multiply (0.05 x(5)x(6))/100	=	0.05	lbs VOC/hr	(7)
Multiply (7)x 730 hrs/mo	=	36	lbs VOC/mo	(8)

Maximum fountain solution usage per month	_____	12	gal/mo	(9)
Maximum VOC content	_____	6.7	lbs VOC/gal	(10)
Multiply (9)X(10)	=	80	lbs VOC/mo	(11)

Maximum blanket/roller wash usage per month	_____	20	gal/mo	(12)
Maximum VOC content	_____	7.36	lbs VOC/gal	(13)
Multiply (12)x(13)	=	147	lbs VOC/mo	(14)

Add (8)+(11)+(14) =	36 + 80 + 147	=	263	lbs VOC/mo MTE	(15)
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FACILITY SUMMARY:

Press #1	Sheet-fed Non-heatset	263	
Press #2	Sheet-fed Non-heatset	220	
Press #3	Sheet-fed Non-heatset	250	
	Press #4 Non-heatset	550	
	Press #5 Non-heatset	625	
TOTAL FACILITY MTE		=	1908 lbs VOC/mo MTE for facility